and drawn so that the vectors shall be central on the circles I, II, III, which run through the middle of the respective adopted subareas. In order to get some idea of the average cyclonic and anticyclonic vectors in the different levels, the mean values of the vectors found on the circles I, II, III, respectively, were taken, and these give the relations between the inner and the outer portions of the masses of air in motion in cyclones and anticyclones. They are shown in Charts 17 and 18. To secure one more concentration of the data, and to further eliminate the local defects, the nine levels were reduced to three by taking the means of the three upper, the the three middle, and the three lower strata together, respectively, and these are shown on Chart 19. The following small Table 7 gives the corresponding numerical results; it is Table 52 of the cloud report.

TABLE 7.—*Mean components grouped in three levels.**

MEAN ANTICYCLONIC COMPONENTS.

		I.	II.	III.
Upper level. Ci., Ci. S., Ci. Cu.	u_2	− 3.3	+ 3.9	+ 2.2
	v_2	− 4.5	− 5.2	− 4.8
	σ	5.6	6.5	5.3
	β	234	307	294
Middle level. A. S., A. Cu., S. Cu.	u_2	0.0	+ 4.2	− 0.8
	v_2	− 7.1	− 6.6	− 9.3
	σ	7.1	7.9	9.3
	β	270	303	265
Lower level. Cu., S., Wind.	u_2	+ 3.3	+ 3.0	+ 1.8
	v_2	− 4.1	− 7.0	− 6.2
	σ	5.3	7.6	6.4
	β	308	294	287

MEAN CYCLONIC COMPONENTS.

		I.	II.	III.
Upper level. Ci., Ci. S., Ci. Cu.	u_2	− 1.2	− 6.8	− 1.8
	v_2	+10.2	+12.3	+ 0.7
	σ	10.3	14.0	2.0
	β	96	119	161
Middle level. A. S., A. Cu., S. Cu.	u_2	− 7.3	+ 0.3	+ 1.6
	v_2	+18.6	+14.4	+ 5.2
	σ	20.0	14.4	5.5
	β	111	89	73
Lower level. Cu., S., Wind.	u_2	+ 0.3	− 2.4	− 1.5
	v_2	+ 7.9	+ 6.3	+ 3.8
	σ	8.0	6.7	4.2
	β	88	111	112

* Copy of Table 52.

It is evident that it would be of great advantage to meteorology to have similar observations continued systematically in the United States, so as eventually to obtain perfectly reliable vectors of motion throughout the atmosphere, and they should be extended to all parts of the world as rapidly as practicable. It is not very safe to draw conclusions extending to the entire atmosphere from the observations made at a few selected localities, such as those in the United States or Europe, but it seems to be necessary for us to do so in the present incomplete state of meteorology. Moreover, we must use the material we now have in discussing what are the fundamental principles of dynamics that can be admitted into the theory, and accordingly I shall proceed to take up the observed general circulation and the local circulations, and compare them with the existing theories in order to arrive at such views as will probably determine the theoretics of the dynamic meteorology of the future.

NOTES AND EXTRACTS.

MR. C. F. R. WAPPENHANS.

Mr. Carl F. R. Wappenhans, for many years a member of the Signal Corps and of the Weather Bureau, died at Arco, Switzerland, February 4, 1902. Mr. Wappenhans was born at Berlin, Prussia, in 1834, served as an officer in the United States Navy from 1862 to 1868, joined the Signal Corps on January 9, 1871, was placed on the retired list as first class sergeant on December 28, 1891, was appointed local forecast official in the Weather Bureau on the same date, and resigned on August 31, 1901. He was in charge of the station at Indianapolis, Ind., from January 30, 1871, until the date of his resignation, with the exception of four years, from 1879 to 1882, when he was in charge of Detroit, Mich. Mr. Wappenhans was a man of most kindly and genial disposition, and a faithful and efficient official.—*H. E. W.*

THE WEATHER OF THE MONTH.

By Prof. ALFRED J. HENRY, in charge of Division of Records and Meteorological Data.

CHARACTERISTICS OF THE WEATHER FOR FEBRUARY.

The weather of February, 1902, was much like that of February, 1901. In the interior low temperatures and great dryness prevailed while on both coasts the precipitation was above the seasonal average. A remarkable feature of the month was the persistence of a ridge-shaped area of high pressure that extended from Tennessee northwestward evidently beyond the field of observation. This ridge of high pressure seems to have been formed and maintained by the movement southeastward along the eastern slope of the Rocky Mountains in British Columbia of areas of high pressure of rather small extent, yet sufficient to prevent areas of low pressure from crossing the Rocky Mountains in the neighborhood of the forty-eighth parallel of latitude. All of the storms of the month therefore except the last one moved southeasterly over the Plateau region to the Texas coast, thence easterly along the Gulf coast, and northeastward along the Atlantic coast to New England. As in 1901 a great depression persisted over the North Atlantic off the Canadian Maritime Provinces. Pressure was also remarkably low off the north Pacific coast and the rainfall in that region was extraordinarily heavy. The temperature was